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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,932	03/31/2006	Hiroyuki Kono	2481-0112PUS1	3103

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BIRCH STEWART KOLASCH & BIRCH  
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FALLS CHURCH, VA 22040-0747

EXAMINER
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MCCARRY JR, ROBERT J

ART UNIT	PAPER NUMBER
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3617

NOTIFICATION DATE	DELIVERY MODE
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06/23/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/532,932	<b>Applicant(s)</b> KONO ET AL.	
	<b>Examiner</b> ROBERT J. MCCARRY JR	<b>Art Unit</b> 3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-28 is/are allowed.
- 6) ☒ Claim(s) 9, 10, 14-18 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 1-8, 11-13, 19 and 29-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites that the optimal solution calculating section executes a program to determine said correction steering angle based on genetic algorithm.” It is unclear to the Examiner as to what the genetic algorithm is and how it is used with the calculation of the steering angles.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 11-13 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadano et al (US 6,463,369) in view of Tashiro et al (US 6,704,641).

Sadano et al discloses a steering system for a vehicle. The vehicle is comprised of wheels mounted to a frame, which the Examiner has interpreted as a cart, and a body supported on the frame and the wheels. The vehicle is further comprised of a steering control system which is comprised of a control unit 10 connected to a camera

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controller 26, used to determine the position of the vehicle. The camera controller operates a forward facing camera 25. The camera observes the roadway in which the vehicle travels and aids in the controller choosing a target steering angle. The camera and the plurality of control units are able to determine a target steering angle as well as an actual steering angle based on the speed and acceleration of the vehicle as calculated by the vehicle speed sensor 22 and the longitudinal acceleration sensor 23, both of which are in direct communication with the central control unit 10. A steering angle sensor 21 is also directly connected to the control unit 10 and mounted to the steering shaft to determine the steering angle. The control unit is also able to calculate the yaw of the vehicle and pass this to the steering motor to allow for the actual steering angle by reducing or increasing the torque of the motor. By adjusting the torque of the motor from the target angle to the actual angle will allow the system to lessen any vibrations accompanied by quick and abrupt movements of the system. The steering assembly controlled by the control unit 10 and motor 16 is further comprised of a drive gear 15 and a drive gear 14 mounted on the steering shaft 5. The gears are controlled by a clutch 17 with the clutch being controlled by the motor 16.

Sadano et al discloses the steering system as described above. However, Sadano et al does not disclose the step of converting and optimizing the steering angle calculations. Tashiro et al discloses a vehicle control system for controlling such components of a vehicle including engine power control, braking control and steering control. Tashiro et al also discloses a correcting means described in column 2, lines 9-25. Tashiro et al describes the system as: "A translation correcting means is provided

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which corrects a translation scheme of the translating circuit so as to compensate for an error between the target value of the one of the controlled variables and an actual one arising from the difference between the controlled variable-related condition and the reference controlled variable-related condition.” One would reasonably interpret that the target steering angle and actual steering angle can be interpreted as the “controlled variables” mentioned in Tashiro et al.

It would have been obvious to one of ordinary skill in the art to have applied a correcting means, like that of Tashiro et al, to a control system, like that of Sadano et al with the expected result of improving the steering capabilities of a vehicle like Sadano et al and therefore improving the safety of the vehicle during travel and preventing damage to the vehicle and improve the ride quality for passengers.

Regarding claims 29-31 drawn to the method of steering a vehicle. The combination of Sadano et al and Tashiro et al discloses the steering system as described above. It would have been obvious to one of ordinary skill in the art to have come to the expected result that since Sadano et al discloses the same apparatus, that it would be operated by the same method.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadano et al (US 6,463,369) in view of Murata et al (US 6,367,577).

Sadano et al discloses the steering system as described above, does not specifically show the mechanical drive section of the steering assembly. Murata et al discloses a steering drive comprised of a motor 8 and a screw axis connected with the output of the motor. The rack 6 is mounted in line with the motor and is rotated about an

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axis in line with the motor. A nut, or pinion 5, is screwed to move with the rack 6. Both are supported by a ball bearing 13b in a lower portion of a housing 13b. An upper housing supports a series of ball bearings and an input shaft which in turn supports the nut 5. Murata et al also discloses a control unit 60. It would have been obvious to one of ordinary skill in the art to have Murata et al as a teaching to show that a steering control system, like that of Sadano et al, can be used to control a drive system like that of Murata et al with the expected result of providing increased control of the system and preventing malfunctions and vehicle accidents.

#### ***Allowable Subject Matter***

Claims 9, 10, 14-18 and 20-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 25-28 are allowed.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT J. MCCARRY JR whose telephone number is (571)272-6683. The examiner can normally be reached on Monday through Friday 7:00am to 3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S. Joseph Morano can be reached on (571) 272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. Joseph Morano/  
Supervisory Patent Examiner, Art Unit 3617

/R. J. McCarry Jr./  
Examiner, Art Unit 3617

RJM  
June 17, 2009